

Serial No.: 09/857,424

IN THE CLAIMS:

1. (Currently Amended) A light-emitting device, comprising:

an anode and a cathode having an emission region between an
anode and a cathode therebetween,

wherein the emission region comprises material
contributable to emission and a medium for containing the
material, ~~and~~

wherein the material contributable to the emission has a
substantially successive distribution of concentration from the
anode side of the emission region toward the cathode side
thereof, and

wherein a part of the emission region that exhibits a
maximum concentration of the material contributable to the
emission is away from the anode and the cathode.

Serial No.: 09/857,424

2. (Currently Amended) The light-emitting device as set forth in Claim 1, wherein the material contributable to the emission exhibits the distribution of concentration according to which any one of the anode side of the emission region and the cathode side thereof is higher in concentration than the other, and the concentration reduces from the one side toward the other side ~~successively~~.

3. (Original) The light-emitting device as set forth in Claim 1, wherein the emission region further comprises charge transport material.

4. (Original) The light-emitting device as set forth in Claim 3, wherein the charge transport material has a substantially successive distribution of concentration from the anode side of the emission region toward the cathode side thereof.

Serial No.: 09/857,424

5. (Currently Amended) A light-emitting device ~~having,~~
comprising:

an anode and a cathode having a charge transport region
~~between an anode and a cathode therebetween,~~

wherein the charge transport region comprises charge
transport material and a medium for containing the charge
transport material, ~~and~~

wherein the charge transport material has a substantially
successive distribution of concentration from the cathode side
of the charge transport region toward the anode side thereof,
and

wherein a part of the charge transport region that exhibits
a maximum concentration of the charge transport material is away
from the anode and the cathode.

6. (Currently Amended) The light-emitting device as set
forth in Claim 1, wherein the emission region includes
comprises, at the side of the emission region near the anode or
the cathode, a region where the material contributable to the
emission is not present.

Serial No.: 09/857,424

7. (Cancelled)

8. (Currently Amended) The light-emitting device as set forth in Claim 5, wherein the charge transport region ~~includes~~ comprises, at the side of the emission region near the anode or the cathode, a region where the charge transport material is not present.

9. (Cancelled)

10. (Currently Amended) A lighting device comprising in combination therewith the light-emitting device as set forth in Claim 1.

11. (Currently Amended) A light-emitting device ~~having,~~ comprising:

an anode and a cathode having an emission region between an anode and a cathode ~~therebetween,~~

Serial No.: 09/857,424

wherein the emission region comprises material contributable to emission and a medium for containing the material, and

wherein the material contributable to the emission has a distribution of concentration that reduces substantially successively in a direction parallel to a surface of the cathode and a surface of the anode from a substantially center of the emission region toward a periphery thereof.

12. (Currently Amended) The light-emitting device as set forth in Claim 11, further comprising ~~wherein there are provided a number of materials~~ a plurality of materials contributable to ~~the emissions~~ emission and are adjacently arranged in a direction parallel to a surface of the cathode and a surface of the anode, and ~~wherein~~ each of the plurality of materials contributable to ~~the emissions~~ are emission is different in luminous color from ~~each other~~ others of said plurality of materials ~~in luminous color~~.

Serial No.: 09/857,424

13. (Original) The light-emitting device as set forth in Claim 11, wherein the emission region further comprises charge transport material.

14. (Original) The light-emitting device as set forth in Claim 13, wherein the charge transport material has a distribution of concentration that reduces in the direction parallel to the surface of the cathode and the surface of the anode from the substantially center of the emission region toward the periphery thereof.

15. (Original) The light-emitting device as set forth in Claim 11, wherein the material contributable to the emission has a substantially successive distribution of concentration from the cathode side of the emission region toward the anode side thereof.

Serial No.: 09/857,424

16. (Original) The light-emitting device as set forth in Claim 14, wherein the charge transport material has a substantially successive distribution of concentration from the cathode side of the emission region toward the anode side thereof.

17. (Original) The light-emitting device as set forth in Claim 11, wherein the emission region includes a region where the material contributable to the emission is not present.

18. (Original) The light-emitting device as set forth in Claim 11, wherein the medium for containing the material contributable to the emission has charge transport capabilities.

19. (Original) The light-emitting device as set forth in Claim 11, wherein the medium for containing the material contributable to the emission comprises organic material.

20. (Currently Amended) The light-emitting device as set forth in Claim 11, wherein the medium comprises a polymer.

Serial No.: 09/857,424

21. (Currently Amended) A display ~~using~~ comprising in combination therewith the light-emitting device as set forth in Claim 11.

22. (Currently Amended) A ~~producing~~ method of producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing~~ method comprising:

~~a disposing step of disposing~~ locating a medium on the anode or the cathode; and

~~a containing step of allowing~~ containing material contributable to emission ~~to be contained in~~ the medium to form the emission region,

wherein said containing comprises dissolving said material contributable to emission in a solvent contained in the medium by steaming.

23. (Currently Amended) A producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising:

Serial No.: 09/857,424

~~a disposing step of disposing~~ a medium containing charge transport material on the anode or the cathode; and

~~a containing step of allowing~~containing material contributable to emission ~~to be contained in~~ the medium to form the emission region,

wherein said containing comprises dissolving said material contributable to emission in a solvent contained in the medium by steaming.

24. (Currently Amended) A ~~producing method of~~ producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing method~~ comprising:

~~a disposing step of disposing~~ locating a medium on the ~~an~~ anode or the ~~a~~ cathode; and

~~a containing step of allowing~~ material contributable to emission and charge transport material ~~to be contained in~~ the medium.

Serial No.: 09/857,424

25. (Currently Amended) A ~~preducing~~ method of producing a light-emitting device having an emission region between an anode and a cathode, the ~~preducing~~ method comprising:

~~a disposing step of disposing~~ locating a medium containing charge transport material on the an anode or the a cathode; and

~~a containing step of allowing~~ material contributable to emission and charge transport material ~~to be contained in the~~ medium.

26. (Currently Amended) A ~~preducing~~ method of producing a light-emitting device having a charge transport region between an anode and a cathode, the ~~preducing~~ method comprising:

~~a disposing step of disposing~~ locating a medium on the an anode or the a cathode; and

~~a containing step of allowing~~ charge transport material ~~to be contained in the~~ medium.

27. (Cancelled)

Serial No.: 09/857,424

28. (Currently Amended) The ~~producing~~ method of producing a light-emitting device as set forth in Claim 24, wherein ~~in the~~ said containing step, comprises penetrating the material contributable to the emission and the charge transport material ~~are penetrated into the medium, whereby they so that said~~ materials are contained in the medium.

29. (Cancelled)

30. (Currently Amended) The ~~producing~~ method of producing a light-emitting device as set forth in Claim 24, wherein ~~in the~~ said containing step, comprises bringing a solution obtained by comprising the material contributable to the emission and the charge transport material ~~being dissolved in solvent is brought~~ into contact with the medium, ~~whereby~~ so that the materials are penetrated into the medium.

31.-32. (Cancelled)

Serial No.: 09/857,424

33. (Currently Amended) A light-emitting ~~device~~device,
comprising:

an anode and a cathode having an emission region between~~an~~
~~anode and a cathode~~ therebetween,

wherein the emission region comprises material
contributable to emission and a medium comprising organic
material for containing the material,

wherein at least one of an anode side of the emission
region and a cathode side thereof is made porous, and

wherein the material contributable to emission is collected
and included in a surface of the emission region which is made
porous.

34. (Currently Amended) A light-emitting ~~device~~device,
comprising:

an anode and a cathode having an emission region between~~an~~
~~anode and a cathode~~ therebetween,

wherein the emission region comprises material
contributable to emission and a medium comprising organic
material for containing the material,

Serial No.: 09/857,424

wherein at least one of an anode side of the emission region and a cathode side thereof is made porous, and

wherein material contributable to emission is collected and included in a region in the vicinity of a surface of the emission region which is made porous.

35. (Currently Amended) The light-emitting device as set forth in Claim 33, wherein charge transport material is included in a surface of the emission region which ~~is~~ has been made porous.

36. (Currently Amended) The light-emitting device as set forth in Claim 33, wherein a leveled layer comprising charge transport material ~~is~~ has been provided on a surface of the emission region which is made porous.

37. (Currently Amended) A light-emitting device, comprising:

an anode and a cathode having a charge transport region ~~between an anode and a cathode~~ therebetween,

Serial No.: 09/857,424

wherein the emission region comprises material
contributable to emission and a medium comprising organic
material for containing the material, and

wherein at least one of an anode side of the charge transport region and a cathode side thereof is made porous.

38. (Original) The light-emitting device as set forth in Claim 37, wherein the charge transport region is a hole transport region.

39. (Original) The light-emitting device as set forth in Claim 37, wherein the charge transport region is an electron transport region.

40. (Currently Amended) The light-emitting device as set forth in Claim 33, wherein the emission region comprises an organic matter.

Serial No.: 09/857,424

41. (Currently Amended) The light-emitting device as set forth in Claim 33, wherein the emission region comprises a polymer.

42. (Currently Amended) A light-emitting ~~device~~device,
comprising:

an anode and a cathode having an emission region between an
anode and a cathode therebetween,

wherein the emission region comprises material
contributable to emission and a medium comprising organic
material for containing the material,

wherein at least one of an anode side of the emission region and a cathode side thereof is roughened, and

wherein the material contributable to emission is collected
and included in a surface of the roughened emission region.

43. (Currently Amended) A light-emitting ~~device~~device,
comprising:

an anode and a cathode having an emission region between an
anode and a cathode therebetween,

Serial No.: 09/857,424

wherein the emission region comprises material
contributable to emission and a medium comprising organic
material for containing the material,

wherein at least one of an anode side of the emission
region and a cathode side thereof is roughened, and

wherein the material contributable to emission is collected
and included in a region in the vicinity of a roughened surface
of the emission region.

44. (Original) The light-emitting device as set forth in
Claim 42, wherein a leveled layer comprising charge transport
material is provided on a roughened surface of the emission
region.

45. (Currently Amended) A light-emitting ~~device~~device,
comprising:

an anode and a cathode having a charge transport region
~~between an anode and a cathode~~ therebetween,

Serial No.: 09/857,424

wherein the emission region comprises material
contributable to emission and a medium comprising organic
material for containing the material, and

wherein at least one of an anode side of the charge transport region and a cathode side thereof is roughened.

46. (Original) The light-emitting device as set forth in Claim 45, wherein the charge transport region is a hole transport region.

47. (Original) The light-emitting device as set forth in Claim 45, wherein the charge transport region is an electron transport region.

48. (Cancelled)

49. (Currently Amended) The light-emitting device as set forth in Claim 42, wherein the emission region comprises a polymer.

Serial No.: 09/857,424

50. (Currently Amended) A display ~~using~~ comprising in combination therewith the light-emitting device as set forth in Claim 33.

51. (Currently Amended) A lighting device ~~using~~ comprising in combination therewith the light-emitting device as set forth in Claim 33.

52. (Currently Amended) A ~~producing~~ method of producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing~~ method comprising:

~~medium disposing step of disposing~~ locating a medium comprising organic material on the an anode or the a cathode;
and

~~a porosity producing step of making at least a part of the~~
medium comprising organic material porous.

53. (Currently Amended) A ~~producing~~ method of producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing~~ method comprising:

Serial No.: 09/857,424

~~a medium disposing step of disposing~~ locating a medium comprising organic material on the ~~an~~ anode or the ~~a~~ cathode;

~~a porosity producing step of making~~ at least one of an anode side of the medium comprising organic material and a cathode side thereof porous; and

~~a disposing step of disposing~~ locating material contributable to emission on a porous surface of the medium comprising organic material, so that the emission region is formed by the medium and the material contributable to the emission.

54. (Currently Amended) A ~~producing method of~~ producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing method~~ comprising:

~~a medium disposing step of disposing~~ locating a medium comprising organic material on the ~~an~~ anode or the ~~a~~ cathode;

~~a porosity producing step of making~~ at least one of an anode side of the medium comprising organic material and a cathode side thereof porous;

Serial No.: 09/857,424

~~a containing step of allowing containing material~~
contributable to emission ~~to be contained~~ in a region in the
vicinity of a porous surface of the medium comprising organic
material, so that the emission region is formed by the medium
and the material contributable to the emission; and

~~a disposing step of disposing locating charge transport~~
material on a porous surface of the medium.

55. (Currently Amended) The ~~producing~~ method of producing
a light-emitting device as set forth in Claim 53, which
~~comprises a disposing step of disposing~~ further comprising
locating charge transport material on a porous surface of the
emission region.

56. (Currently Amended) The ~~producing~~ method of producing
a light-emitting device as set forth in Claim 53, which
~~comprises a leveled layer forming step of~~ further comprising
forming a leveled layer comprising charge transport material on
the emission region.

Serial No.: 09/857,424

57. (Currently Amended) The ~~producing~~ method of producing a light-emitting device as set forth in Claim 53, wherein ~~the disposing step is a step of disposing comprising locating a~~ medium containing material soluble in a specified solvent, and ~~the porosity producing step is a step of eluting the~~ soluble material from the solvent to thereby make the medium porous.

58. (Currently Amended) A ~~producing~~ method of producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing~~ method comprising:

~~a medium disposing step of disposing~~ locating a medium comprising organic material on the an anode or the a cathode;
and

~~a roughening step of roughening a part of the medium~~
comprising organic material.

59. (Currently Amended) A ~~producing~~ method of producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing~~ method comprising:

Serial No.: 09/857,424

~~a medium disposing step of disposing~~locating a medium comprising organic material on the ~~an~~ anode or the ~~a~~ cathode;

~~a roughening step of roughening~~ at least one of an anode side of the medium comprising organic material and a cathode side thereof; and

~~a disposing step of disposing~~locating material contributable to emission on a roughened surface of the medium comprising organic material, so that the emission region is formed by the medium and the material contributable to the emission.

60. (Currently Amended) A ~~producing method of~~ producing a light-emitting device having an emission region between an anode and a cathode, the ~~producing method~~ comprising:

~~a medium disposing step of disposing~~ locating a medium comprising organic material on the ~~an~~ anode or the ~~a~~ cathode;

~~a roughening step of roughening~~ at least one of an anode side of the medium comprising organic material and a cathode side thereof; and

Serial No.: 09/857,424

~~a containing step of allowing~~ containing material contributable to emission ~~to be contained in~~ a region in the vicinity of a roughened surface of the medium comprising organic material, so that the emission region is formed by the medium and the material contributable to the emission.

61. (Currently Amended) The ~~producing~~ method of producing a light-emitting device as set forth in Claim 59, which ~~comprises a leveled layer forming step of~~ further comprising forming a leveled layer comprising charge transport material on the emission region.

62. (Currently Amended) The ~~producing~~ method of producing a light-emitting device as set forth in Claim 59, wherein the ~~roughening step is a step of~~ comprising roughening the emission region by dry etching.